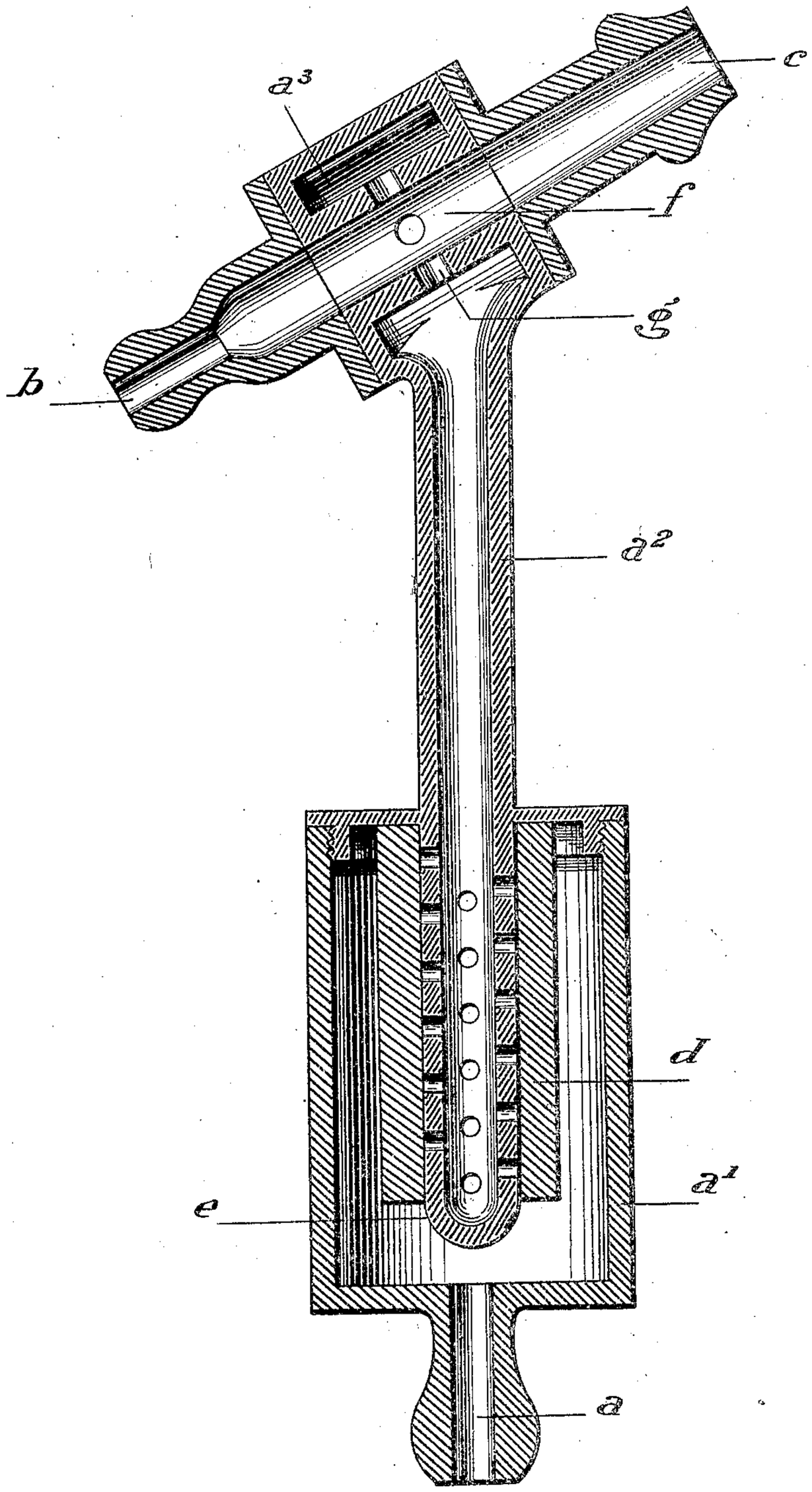
No. 821,188. PATENTED MAY 22, 1906.

C. PICARD.

BLOWPIPE.

APPLICATION FILED JUNE 13, 1904.



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UNITED STATES PATENT OFFICE.

CHARLES PICARD, OF PARIS, FRANCE.

BLOWPIPE.

No. 821,133. Specification of Letters Patent. Patented May 22, 1906.

Application filed June 13, 1904. Serial No. 212,303.

To all whom it may concern:

Be it known that I, CHARLES PICARD, a citizen of the French Republic, and a resident of Paris, France, (whose postal office address is 282 Rue Saint-Jacques, Paris, France,) have invented certain new and useful Improvements in Blowpipes, of which the following is a specification.

This invention relates to improvements in blowpipes in which acetylene or any gas possessing intrinsical explosive properties is employed instead of hydrogen. The present blowpipe is furnished with means for counteracting the explosiveness of the mixture and for preventing an explosion spreading in the inlet-pipe for acetylene or any gas being capable of being decomposed with explosion under certain circumstances.

A method for preventing an explosion spreading in the inlet-pipe for acetylene consists in using certain porous bodies which oppose a very great resistance to the propagation of explosions; but as they oppose at the same time, if their pores be fine enough to attain this result, a noticeable resistance to the circulation of the gases it is necessary to arrange them in a special manner to avoid too great a loss of head of gas. Therefore instead of giving these preventatives of explosion (generally obtained in bricks, pumice-stone, compressed asbestos, &c., inserted in the piping) the form of a block they are given a section very considerable with regards the thickness to be traversed by the gas. They are given the form of a thin plate, through which the gas will normally pass, or that of the space comprised between two cones slightly separated one from the other, or, as limit of the preceding case, of the annular space comprised between two cylinders, which is obtained by piercing a full cylinder following its axis.

The loss of head, sensibly proportionate to the thickness and to the square of the speed—that is to say, to the inverse of the square of the section (surface of the plate, cone, or cylinder) can be reduced to very little; but the search for a slight loss of head, if constructional reasons do not allow the section (surface of the plate, cone, or cylinder) to be increased, necessarily leads to the use of thin material, so that there is necessity to think of the strength of the porous body to prevent it splitting, which would take all efficacy from it. In order to avoid this accident, the surface exposed to receive the shock of an explosion is covered with a strong jacket—for instance, with metal plate pierced with holes the total section whereof will be comparable to the total section of the pores of the material constituting the explosion-stop—and the entry of an explosion-wave into the pipe conducting the gases from the explosion-stop to the mixing-chamber is rendered as difficult as possible; but explosive waves, the effects whereof increase when they arrive in closed alleys terminating rectilineal channels, have, on the contrary, a great difficulty in passing rectangular trajects. Therefore instead of connecting, as is generally done in such apparatuses, nearly tangentially or at very small angles the axis of the inlet-pipes and the axis of the tube for the escape of the mixture it will be necessary to make them communicate by openings made in a plane almost perpendicular to the axis of the tube containing the mixture. Furthermore, it will be advantageous to replace a single opening by several smaller ones.

An advantageous device consists in arranging the end of the inlet-tube for acetylene or similar gases concentrically round the outlet-tube for mixture, the wall being pierced with holes situated in a plane passing at right angles with the axis and which are convergent up the axis or not, according to whether it is desired to utilize for the mixture the contact of opposed gaseous streams or the eddying movement of the streams, guided more or less is a circular manner by the proximity of the wall.

The annexed drawing shows a sectional view of a blowpipe of this description.

a indicates the inlet-tube for acetylene, *b* inlet for oxygen, and *c* the exit-tube for the mixture. The inlet-tube *a* terminates in a chamber *a'*, into which projects the end *e* of the body of the tube a^2 for conducting acetylene into the mixture-chamber. The end *e* inside the chamber *a'* is pierced with a great many holes and is inclosed in a thin cylinder *d*, of a porous material. The cylinder *d* constitutes the stop for the explosion. The end *e* of the tube serves as covering for its side exposed to the shock of an explosion. The tube a^2 terminates in a chamber a^3 concentric to the portion *f* of the outlet-tube *c*, in which the mixture is made. The acetylene empties into the tube *f* by the holes *g* normal to the wall of the tube or slightly inclined upon that wall.

Having now fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. In a device of the class described, a gas-chamber forming a portion of the gas-passage, a metallic outlet-pipe closed at the inner end extending into the gas-chamber having a perforated peripheral wall, and a sleeve of porous material fitting tightly upon the end of the outlet-pipe within the casing so as to cover the peripheral perforations, substantially as shown and described.

2. In a device of the class described, a gas-chamber forming a portion of the gas-passage, a metallic outlet-pipe closed at the inner end extending into the gas-chamber having a perforated peripheral wall, a sleeve of porous material fitting tightly upon the end of the outlet-pipe within the casing so as to cover the peripheral perforations, and an annular chamber at the outer end of the outlet-tube surrounding a central passage open at both ends and in communication therewith by way of openings through the annular dividing-wall, substantially as shown and described.

3. In a device of the class described, a gas-chamber forming a portion of the gas-passage, a metallic outlet-pipe closed at the inner end extending into the gas-chamber having a perforated peripheral wall, a sleeve of porous material fitting tightly upon the end of the outlet-pipe within the casing so as to cover the peripheral perforations, the axis of the inlet, the outlet-tube and that of the inlet-orifice of the gas-chamber being substantially coincident, substantially as shown and described.

4. In a device of the class described, a gas-chamber forming a portion of the gas-passage, a metallic outlet-pipe closed at the inner end extending into the gas-chamber having a perforated peripheral wall, a sleeve of porous material fitting tightly upon the end of the outlet-pipe within the casing so as to cover the peripheral perforations, the axis of the inlet, the outlet-tube and that of the inlet-orifice of the gas-chamber being substantially coincident, and an annular chamber at the outer end of the outlet-tube surrounding a central passage open at both ends and in communication therewith by way of openings through the annular dividing-wall, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

CHARLES PICARD.

Witnesses:
ADOLPH STURM,
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